VANCOUVER ISLAND/COAST

An Implementation Strategy:

The Report of the Technology and Innovation Task Force

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PREFACE

As Chairman of the Technology and Innovation Task Force for Region One (Vancouver Island/Coast), I am pleased to present this report in the hope that it will be widely circulated, discussed, and acted upon.

I would also like to thank the Honourable Terry Huberts, Minister of State for Vancouver Island/Coast and North Coast, Responsible for Parks, the members of the Task Force, and the staff of the Minister of State's office for their energy and commitment to the future economic development of our region.

Although this report only represents the first phase of our implementation strategy, it is crucial that the recommendations are acted on speedly and decisively. British Columbia is in transition. If we are to retain our standard of living, we must increasingly compete in the new global economy by means of our creativity, our productivity, and our skills in working together. Free trade, the unification of the European market in 1992, and the growing importance of the Pacific Rim all mean that we must capitalize on our assets. We must aggressively pursue the new knowledge-based industries and transfer the resulting technologies more effectively to both our traditional industries and to our small businesses. This will not only provide us with well-paying new jobs, but will allow us to better use our natural resources and be pro-active in protecting our environment.

The new industries are growing at a much faster rate than more traditional industries. However, there is cause for alarm. B.C. is in great danger of falling behind in its ability to grow and develop these new industries quickly enough to compete in the global race. We have a window of opportunity. The technology and knowledge-based industries are already a growing and vital force in the economy of the region. With decisive action now it will be possible to build on this base and use the region as a "test bed" to demonstrate the potential for economic growth based upon these high growth industries. We have both the expertise and determination to compete in global markets. The public sector, in concert with industry, can provide the necessary leadership to launch our province into this exciting new era of development. This report from the Technology and Innovation Task Force provides a concrete plan of coordination and action.

Respectfully submitted,

Janet M. Baird

Janet M. Baird
Chairman, Technology and Innovation Task Force

EXECUTIVE SUMMARY

Many provincial and national initiatives recognize the importance of the new technologies and innovation to our economic future. Industries based on the new technologies are growing at a dramatic rate compared with more traditional industries and technology transfer to the latter is making them more competitive and allowing them to develop value-added products. The Science Council of B.C. has documented the fact that the information technology industry, for example, which is already a $1-billion industry in British Columbia is growing at an average rate of 28% per annum so that it could compete with mining as the province's second largest industry by 1995. Furthermore, although the output of the traditional industries (forestry, pulp and paper, etc.) is increasing much more slowly, the employment in these industries is showing a clear and continuing decline.

Although the growth in the new technology and knowledge-based industries may seem spectacular in the B.C. setting, in comparison to the growth in the industry internationally, British Columbia is struggling to keep pace. Moreover, while Canada is well below most of industrialized countries (including the U.S.A., Japan, West Germany, the U.K., France, and Italy) in such areas as research and development activities, B.C. is well below the national average.

Region One (Vancouver Island/Coast Region) is the only one of the economic development regions that has established a Task Force on Technology and Innovation. This report presents the next steps of an implementation strategy to achieve the goals of the Task Force, which are:

1. To significantly increase the contribution to economic development made by technology based companies throughout Region One.

2. To ensure that businesses and entrepreneurs in Region One are made aware and have adequate access to new technologies, government programs and agencies.

The new industries depend on a highly skilled and potentially highly mobile work force. Region One has many features which make it inherently attractive for the new industries and the people they need to attract. It therefore has the potential of being a "test bed" for economic growth by building on what already exists and mastering the skills that are so necessary for continued prosperity. According to the

Business and Industry Development Centre, the new industries have already become recognized as a growing and vital force in the economy of Region One, employing over 2,200 people in research and development and generating revenues of the order of $100-million. The National Policy Roundtable (organized by the Canadian Advanced Technology Association, the Science Council of Canada, and the Canadian Chamber of Commerce) also identifies this region as being a prime candidate for becoming a major growth centre for the new industries. The challenge facing the Task Force is to ensure that this potential is fully realized.

The very features which make Region One so attractive to the new industries, such as excellent telecommunication links and its strengths in the software industries, will allow innovative approaches to ensuring it becomes such a growth centre. For example, telecommunication and information technologies can be used to encourage "telework" and "telepresence", rather than frequent commuting to and from Victoria or the more remote parts of the region, and the use of expert systems can be used to synthesize already available expertise. By using these new technologies **in concert with** the establishment of a local infrastructure within the region, it will be possible to synergize a critical mass from the distributed resources throughout the whole of Region One rather than in just one city.

As a result of the Task Force's activity, its cooperation with other organizations, and the liaison with other province-wide initiatives, broad consensus has been reached on a number of actions that are needed within Region One. These include:

- Establishing a Technology and Knowledge-Based Industries Council or "Standing Committee" for the Vancouver Island/Coast Region;

- Creating an economic blueprint (a strategic plan) for increasing the development of technology and knowledge-based industries within Region One;

- Creating a strategic plan for increasing technology transfer to existing resource-based industries and small businesses within Region One;

- Creating and maintaining a database of activities which are within the mandate of the Task Force and using this to develop critical economic indicators;

- Establishing a Technology Innovation Centre (an "incubation centre without walls");

- Initiating of a high-quality communications program designed to increase the awareness of the technology and knowledge-based industries within Region One and to market the products and services of these industries.

In order to maintain the current momentum, the Task Force is establishing a number of Project Teams to ensure that the above deliverables are achieved.

I Project Team on the implementation of specific projects, programs, and demonstrations

This Project Team will identify and launch a number of specific projects and programs, carefully planned so that they can be both implemented and evaluated to determine their value to Region One and their likely value to the province as a whole. This will include a "Technology Innovation Centre" and a number of initiatives for improving the marketing and awareness of the new industries in Region One.

II Project Team on the development of critical economic indicators

In order to objectively determine whether the proposed activities are achieving any demonstrable effect, it is necessary to have an accurate and comprehensive overview of the activities within Region One, including employment and economic indicators. Several initiatives, such as the Discovery Foundation's province-wide database, the BIDC Directory, and the B.C. Business Network are already underway, but these are not yet in a form that can be accessed and manipulated into meaningful reports on the region. This Project Team will work closely with these initiatives in order to develop a database and critical economic indicators for Region One.

III Project Team on the development of a strategic plan for Region One

This Project Team will prepare an economic blueprint for Region One for achieving the long-term goals of the Task Force. It will plan to synthesize a critical mass in Region One by using modern telecommunication and information technologies. It will also analyse the opportunities for the region, outline developmental strategies and tactics, and produce a strategic plan. This first task of this Project Team will be the creation of a Vancouver Island/Coast Council for Technology and Knowledge-Based Industries.

IV Project Team on technology transfer

This Project Team will focus on opportunities of transferring technologies to aid companies, including small businesses as well as the traditional resource-based industries within the region. This Project Team will identify strengths and possible collaborations with the universities, colleges, and other research centres within the region; will identify technology requirements within industry and small businesses; and will work closely with the Science Council of British Columbia to provide information to industry and small businesses in Region One. By making better use of technology, it will be possible to enhance their productivity, increase their international competitiveness, and expand their market potential. It will also help to demystify the role of technology at the same time as increasing its contribution to economic development.

Each Project Team will have finite tasks and duration. They will meet and report on their progress at regular intervals to the Task Force. Each will have a Chairman (a member of the Task Force), professional planning support resources assigned to work under the Chairman's direction, and clearly-defined terms of reference, including budget, schedule, and deliverables.

At present, the Task Force is playing a leadership role, cooperating with other organizations within the region (e.g. the Vancouver Island Technology and Research Association and the Chambers of Commerce), and liaising with other province-wide initiatives (e.g. the Science Council's SPARK program). The creation of the Vancouver Island/Coast Council will replace the present Task Force and, at

the same time, will begin a process of removing support from government to industry. The proposed Council will take over those Project Teams that have been initiated by the Task Force and will provide an active forum for networking ideas among all key sectors of the community. The Council will meet regularly (similar to the Science Council of B.C.); will set up working groups, project teams, or sectoral committees as appropriate; will evaluate the present base of technology and knowledge-based industries; will determine strengths and weaknesses (regional, scientific, and technological); and will develop strategies to diversify the technology and knowledge-based industries both technologically and geographically.

The Technology Innovation Centre will provide a service for new and established technology and knowledge-based companies within Region One; will act as a catalyst for industry cooperation/joint ventures; will liaise with potential new firms that are considering moving into the region; and will provide mechanisms for evaluating business plans and proposals for both government and industry, and business opportunities for investors, governments, and small businesses. By setting up and promoting the Technology Innovations Centre as an "incubation centre without walls" it will serve the whole region rather than just one city. A two or three person office could handle all of the enquires from Region One provided that it uses modern telecommunications and information technology and functions as an information broker and referral service.

It is clear that decisive steps need to be taken to accelerate the development of technology and knowledge-based industries within the Region. The Task Force has identified a clear course of action for promoting economic growth on the basis of specific projects, programs, and demonstrations coordinated into a strategic plan.

INTRODUCTION

This report was prepared for the Honourable Terry Huberts, Minister of State for Vancouver Island/Coast and North Coast, Responsible for Parks. It presents an overview of some of the current activities which fall within the mandate of the Technology and Innovation Task Force for Vancouver Island/Coast (Region One) and presents proposals for the next phase of the Task Force's implementation strategy. In preparing this report, many other initiatives were examined, including those of:

- Science Council of British Columbia
- Premier's Advisory Council on Science and Technology
- National Research Council, Canada
- B.C. Ministry of Regional Development
- Department of Communications, Canada
- Canadian Chamber of Commerce
- Science Council of Canada
- National Technology Policy Roundtable
- Discovery Foundation, Discovery Enterprises, and Discovery Innovation Centre
- B.C. Advanced Systems Institute

There is no doubt that these diverse initiatives all recognize the importance of the new technologies and innovation to our economic future. This is happening in two ways:

(i) Industries based on the new technologies are growing at a dramatic rate compared with more traditional industries;

(ii) Technology transfer to the more traditional industries is making them more competitive and allowing them to develop value-added products.

However, although the changes may seem spectacular in the B.C. setting, in comparison to the growth in the industry internationally, ***British Columbia is struggling to keep pace.*** Moreover, while Canada is well below most of industrialized countries (including the USA, Japan, West Germany, the U.K., France, and Italy) in such areas as research and development activities, ***B.C. is well below the national average.***

Although the problem and the potential is acknowledged by those who have studied the situation (and is discussed at length in such reports as Service Industry Growth (The Fraser Institute) and Competing in the New Global Economy (Ontario Premier's Council), it remains "invisible" and poorly understood by many people. Even much of the infrastructure (e.g. government statistics or programs to help new companies) is based on the older manufacturing industries rather than the new industries and services.

TECHNOLOGY AND KNOWLEDGE-BASED INDUSTRIES

This shift in the new global economy to a greater dependence on science, technology, and knowledge is crucial to understanding the situation and developing an **effective** strategy to address it. According to studies done by the Ministry of Regional Development, in the traditional manufacturing industries, over 70% of the selling price may be from component manufacturing and assembly, 10% for sales and service, and only 6% in the market research and design phase. It is, therefore, hardly surprising that most of the existing programs focus on providing assistance for the manufacturing and assembly phase. In the new industries, the market research and design phase may account for 25% of the cost, sales and service may be 20%, yet product assembly may only account for 35% prompting the Ministry of Regional Development to characterize these industries as "high risk and high profit". The fact that investing in people is crucial to successfully developing and promoting the new industries has led a number of reports to use the term "Knowledge-Based Industries" rather than "Hi-tech" to underline the fact that there is a shift in focus from "bricks and mortar" to knowledge and human capital. "Hi-tech", in particular, is probably a poor term to use, since relatively few of the developments in the successful new industries can

really be described as "leading edge". More often they are adaptations and applications of existing technologies (which may, of course, be relatively recent) in new and innovative products. The term also tends to focus the attention of the public and politicians alike on the "hardware" rather than on the people skills. This misplaced emphasis has probably been a contributing factor to some of the misguided, and occasionally disastrous, attempts to establish so-called "hi-tech" manufacturing plants in British Columbia.

Because the fundamental structure of the global economy is changing so rapidly, it is hardly surprising that many of the ways of thinking about it are still rooted in the "traditional" manufacturing approach. For example, the 1980 Standard Industrial Classification (SIC) Codes used by the Central Statistics Branch categorizes traditional industries down to the level of the "Potato Chip, Pretzel, and Popcorn Industry", for example, but simply lists "Electronic Computing and Peripheral Equipment Industry" as a subset of "Office, Store, and Business Machine Industry" and makes no mention at all of either biotechnology or software. Furthermore, although the high growth and emerging industries all share the characteristics described by the Ministry of Regional Development, different agencies tend to concentrate on different sectors. For example, the Ontario Premier's Council lists:

- Telecommunications
- Aerospace
- Computer Hardware
- Computer Software and Services
- Laser Technology
- Biotechnology
- Nuclear Technology

in its analysis of high growth and emerging industries. The Science Council of British Columbia, on the other hand, as part of its $1-million "Strategic Planning for Applied Research and Knowledge" initiative, includes both new industries in which

B.C. has acknowledged strengths as well as existing industries which could benefit from technology transfer. It has recently appointed full-time coordinators in:

- Information Technology
- Biotechnology
- Aquaculture
- Health
- Mining
- Construction
- Manufacturing

as well as an overall coordinator and is planning to appoint a coordinator for the Sectoral Committee on Financing.

Similarly, although neither the Science Council of B.C. or the Ontario Premier's Council include the new publishing industries and the program production industries explicitly in their lists, the Department of Communications, Canada see these as a central part of, what it calls, the "new information industries".

In the present report, the term "technology and knowledge-based industries" is used to describe those economic activities which are within the mandate of the Task Force. This term is deliberately broad and not only includes the new high-growth and emerging industries, such as information technology and biotechnology, but also the transfer of the new technologies to traditional industries and small businesses.

This distinction between the new industries and transferring new technologies to existing industries is an important one. The successful **application** of new technologies to other sectors (e.g. forestry or manufacturing) will have major economic consequences. In a number of cases there is an existing Regional Task Force with which the Task Force on Technology and Innovation will be able to liaise to promote successful technology transfer. In other cases, such as the application of

new technologies to small businesses, the Task Force will have to cooperate with other organizations, such as the Chambers of Commerce, to achieve its objective.

In terms of the technology and knowledge-based industries that are already extant within Region One, the mix is an eclectic one with some notable strengths and omissions. The software industry is particularly strong as are a number of industries related to marine activities (robotics, biotechnology, and instrumentation, for example) and the environment. The aerospace and nuclear industries, per se, are conspicuously absent, as is the infrastructure to support such activities, although some software firms are making major contributions to these areas. Given the excellent telecommunication facilities in the region, it is surprising that there is not greater activity in this area. This may be due, in part, to the lack of a proactive council, such as the Edmonton Advanced Technology Council, which is prepared to lobby for such things as a Pacific Teleport, which could be located within Region One, or even to lobby **against** other facilities being moved out of the region.

The present report, therefore, presents the second phase of an implementation strategy which includes increasing the contribution to economic development made by the new industries and the successful transfer of new technologies to existing industries throughout Region One.

UNIQUE OPPORTUNITIES FOR REGION ONE

Region One (Vancouver Island/Coast) is the only one of the economic development regions that has established a Task Force on Technology and Innovation. This Task Force has identified two broad goals to which it will apply itself, namely:

1. To significantly increase the contribution to economic development made by technology-based companies throughout Region One.

2. To ensure that businesses and entrepreneurs in Region One are made aware and have adequate access to new technologies, government programs, and agencies.

At the present time a great many initiatives are underway which underline the importance of the high growth and emerging industries to our economic future. These include reports such as:

- *Pacific Technologies Marketing Corporation* (Business Industrial Development)
- *Strategic Planning for Applied Research and Knowledge* (Science Council of B.C.)
- *Strategies for Innovation* (Premier's Advisory Council)
- *Service Industry Growth* (Causes and Effects) (Fraser Institute)
- *Focus 2000* (Canadian Chamber of Commerce)
- *Communications for the Twenty-First Century* (Communications Canada)
- *Gearing Up for Global Markets* (Science Council of Canada)
- *The Technology Engine in Community Economic Development* (National Policy Roundtable)
- *Ten Years to 2000* (Natural Sciences and Engineering Research Council, Canada)
- *Competing in the New Global Economy* (Ontario Premier's Council)
- *Bilan de l'activité scientifique et technologique* (Conseil de la science)
- *Innovation in America* (Business Week Special 1989 Issue)

As already noted, a number of these reports are beginning to use the term "Knowledge-Based Industries" rather than "Hi-Tech". No matter which term is used, the fact remains that the new industries depend on a highly skilled and potentially highly mobile work force. This shift to knowledge and human capital is also seen in the substantial difference between traditional manufacturing and the

new industries and again underlines the fact that investing in people is crucial to successfully developing and promoting the new industries.

Region One has many features which make it inherently attractive for the new industries and the people they need to attract:

- A strategic location on the Pacific Rim;
- A strong base of successful local industries in the new technologies and other innovative areas which are already achieving significant sales to markets in the U.S. and the Pacific Rim;
- Outstanding telecommunication facilities;
- Good transportation links to the rest of Canada and the U.S.;
- A high quality of life;
- An attractive climate; and
- Excellent cultural and leisure activities.

Because of this, and as a result of the Minister of State having established a Task Force on Technology and Innovation, Region One is in a unique position to begin to implement **concrete** steps which can result in a significant increase in the economic contribution made by the new industries to the region and also to transfer these new technologies to the existing resource based industries and small businesses, making them more competitive and allowing them to develop value-added products. To achieve this needs both the active cooperation of a number of ministries and other agencies and a process that is driven by and responsive to the needs of business.

REGION ONE: A "TEST BED" FOR ECONOMIC GROWTH

If B.C. in general (and Region One in particular) is to maintain its current standard of living, it can no longer rely on its natural resources alone. The Globe and Mail reported recently that, only a few decades ago, Argentina's per capita income was higher than Japan's and its gross national product was roughly the same as Canada's. Today, Argentina, which is still dependent on the export of raw materials (mainly beef, wool, and grain), has become proportionally one of Latin America's most indebted countries, with poverty increasing on a dramatic scale. Similarly, the report of the Ontario Premier's Council states: "A country of over 25 million cannot live well on resources alone, even ones as rich as ours. We must increasingly compete by dint of our creativity, our productivity, and our skill in working together. Success in the high-growth industries of today and the emerging industries of tomorrow will require a set of economic skills we have not yet mastered." With the cooperation of government and agencies such as the Science Council and Discovery Foundation, Region One has the potential of being a "Test Bed" which will build on what already exists and master the skills that are so necessary for continued prosperity.

The Science Council of B.C. has documented the fact that industries based on the new technologies are growing at a dramatic rate (the production values of information technology, for example, are growing at an average rate of 28% per annum, so that it could compete with mining as B.C.'s second largest industry by 1995). Furthermore, although the output of the traditional industries (forestry, pulp and paper, etc.) is increasing, the employment in these industries is showing a clear and continuing **decline**. According to the Business and Industry Development Centre, the new industries have already become recognized as a growing and vital force in the economy of Region One, employing over 2,200 people in research and development and generating revenues of the order of $100-million. This, and a number of other features, make ***Region One well suited as a test bed for economic growth:***

- Over 135 companies already actively engaged in the new technologies, representing approximately 25% of the province's activity;

- A strong focus in the software industry and another in marine related activities (including biotechnology, instrumentation, and robotics);

- A strong program production industry (both video and sound) which shares many of the characteristics of the other "knowledge-based" industries;

- A population (in excess of 500,000) which is large enough to clearly demonstrate the benefits of any activity;

- Good transportation links to the U.S. and the mainland (twice as many people are carried between Vancouver Island and the mainland than between Britain and continental Europe, despite the much smaller population base);

- Excellent cable and satellite communication links to the Pacific Rim and high-speed links (including BCNet and video-conferencing) to the Mainland;

- A number of existing research and other centres, including:

  - Institute of Ocean Sciences
  - Dominion Astrophysical Laboratory
  - Forestry Research Centre
  - Pacific Geoscience Centre
  - Bamfield Marine Station
  - Defence Research Establishment Pacific
  - Pacific Biological Station, Nanaimo
  - B.C. Educational Technology Centre
  - University of Victoria and three regional colleges (Camosun, Malaspina, and North Island)

- B.C. Systems Corporation.

- Almost 500 Ph.D.'s in the Victoria Region alone.

It is not surprising, therefore, that the National Policy Roundtable (organized by the Canadian Advanced Technology Association, the Science Council of Canada, and the Canadian Chamber of Commerce) identified this region, along with Calgary, Edmonton, Halifax, Quebec, Saskatoon, and Winnipeg, as being prime candidates for becoming self-sustaining growth poles for the new industries. **The challenge facing the Task Force is to accomplish this and to demonstrate its success.**

THE CHALLENGE FOR REGION ONE

In abstract terms, there is broad consensus on the steps necessary to stimulate the development of the new industries. However, it is quite a different matter to translate these into action items which will work within a given region and to monitor what has been done in order to demonstrate its success. Quite frequently, programs can be developed which all too easily become self-sustaining and out of touch with the needs of business.

The Task Force has already adopted three approaches that allow it to be proactive and responsive to the needs of small businesses, many of which which are already successful in responding to market needs and establishing viable niche markets:

(a) It is actively cooperating with organizations such as the Vancouver Island Technology and Research Association (VITRA — an industry-based association which was established to promote and enhance the technology industry in the Vancouver Island area), the local Chamber of Commerce, and the Economic Development Association. This keeps the Task Force in close contact with the real needs of businesses.

(b) It is liaising closely with other initiatives, such as the Science Council's "Strategic Planning for Applied Research and Knowledge" which is moving strongly forward with a budget of approximately $1-million in a number of sectors, including Information Technology, Biotechnology,

Aquaculture, Health, and Financing, many of which have direct applicability to Region One. This liaison keeps the Task Force in touch with provincial and national initiatives and allows it to **build** on these developments in a concrete way that is specific to the needs of Region One.

(c) It has begun to liaise with different branches of government, including the Ministry of Advanced Education and Job Training, the Ministry of International Business and Immigration, the Ministry of Regional Development, the Office of Information Technologies, and the Purchasing Commission, which are themselves involved in a number of initiatives relating to the needs of the new industries.

However, in common with the other Canadian centres which have not yet become self-sustaining growth poles for new industry, Region One has a number of specific challenges that it must successfully address. For example:

- The population is too dispersed to foster effective technology growth poles in the traditional manner;

- With the possible exception of B.C. Systems, there is not a major industry currently in Region One that attracts highly skilled people in the same way as, say, Xerox's PARC;

- Although forestry, mining, and fishing have traditionally been major employers within the region, their research and development activities are elsewhere and they tend to look outside the region for technology transfer;

- Secondary infrastructure is poorly developed, so that existing businesses frequently have to look to companies outside the region to provide these services;

- Organizations such as the Science Council, Discovery Foundation, and the Advanced Systems Institute, which could be very useful to new industries in Region One, have their headquarters in the Lower Mainland;

- The existing business, despite many success stories, are all but invisible to the public and to the politicians, perpetuating the image of the region as one of tourism and fishing, with Victoria, in particular, being perceived as a retirement community.

However, these are challenges, not insurmountable problems. The very features which make Region One so attractive to the new industries, such as its excellent telecommunication links and its strengths in the software industries, will allow innovative approaches to addressing these problems. For example, information and communication technologies could be used to encourage "telework" and "telepresence" rather than frequent commuting to and from Victoria or the more remote parts of the region, and the use of expert systems could be used to synthesize already available expertise (such as funding opportunities). By using these new technologies **in concert with** the establishment of a local infrastructure within the Region, it will be possible to determine whether the "critical mass" or "growth pole" can be synergized from the distributed resources already available in Region One.

NEXT STEPS FOR THE TASK FORCE

As a result of the Task Force's activity, the cooperation with local organizations such as VITRA, and the liaison with other Province-wide initiatives, such as the Science Council's SPARK program, there has emerged broad consensus about a number of initiatives that are needed within Region One. These include:

- Establishing a Technology and Knowledge-Based Industries Council or "Standing Committee" for the Vancouver Island/Coast Region;

- Creating an economic blueprint (a strategic plan) for increasing the development of technology and knowledge-based industries within Region One;

- Creating a strategic plan for increasing technology transfer to existing resource-based industries and small businesses within Region One;

- Creating and maintaining a database of activities which are within the mandate of the Task Force and using this to develop critical economic indicators;

- Establishing a Technology Innovation Centre (an "incubation centre without walls");

- Initiating of a high-quality communications program designed to increase the awareness of the technology and knowledge-basedindustries within Region One and to market the products and services of these industries.

These initiatives are clearly interrelated. For example, a successful Technology Innovation Centre would maintain close contact with existing industries within Region One, and thereby provide a mechanism to ensure that the database was accurate and up-to-date. Similarly, without an accurate and comprehensive database, it is difficult to develop critical economic indicators and use these to create an economic blueprint for the region. Such interaction is essential if the proposed economic blueprints are to be grounded in reality and the Technology Innovations Centre is to be responsive to real needs within the Region. Indeed, the process of developing a successful strategic plan should include a number of projects, programs, and demonstrations which can be evaluated as part of that process. Both the Technology Innovation Centre and the marketing and communications program are initiatives that have been identified by industry as immediate needs, but nevertheless, these should still be evaluated and the results fed forward as an integral part of the strategic plan.

It follows that a logical way of proceeding would be to establish a Vancouver Island/Coast Council whose members would include the Chambers of Commerce, the Vancouver Island Technology and Research Association, the university and colleges, government research laboratories (both federal and provincial), appropriate crown corporations, and appropriate federal and provincial ministries. Such a Council could then begin a number of activities, including establishing the Technology Innovation Centre and developing the economic blueprints for the region. However, in order to maintain the momentum which has been developed over the past few months, it is recommended that the Task Force should continue to play a leadership role and establish a number of Project Teams or Working Groups under its aegis as part of an action plan to achieve some clearly-defined deliverables. These deliverables will include the creation of the "Technology Innovation Centre" and "Vancouver Island/Coast Council" which, once

established, will become a successor to the Task Force and act as the natural organizational focus for the Project Teams.

Four broadly-structured Project Teams are initially proposed, each of which will have their membership structured to allow them to focus on a common area of activity:

I Project Team on the implementation of specific projects, programs and demonstrations;

II Project Team on the development of critical economic indicators;

III Project Team on the development of a strategic plan for Region One;

IV Project Team on technology transfer.

Each Project Team will have finite tasks and duration. They will meet and report on their progress at regular intervals to the Task Force. Each will have a Chairman (a member of the Task Force) and professional planning support resources assigned to work under the Chairman's direction. Each Chairman will structure the Project Team by establishing membership from government, industry, institutions, etc. as appropriate to the task of the Project Team. Each will have its terms of reference clearly defined, including budget, schedule, and deliverables. These deliverables will provide information or services that are beneficial to a number of initiatives that have been undertaken by different ministries.

In addition, the Chairman of the Task Force requires a professional function to assist in coordinating the activities of the Project Teams for both their content and administering funds. This coordinating function will also have the responsibility for liaising with the SPARK and any other provincial initiatives that are relevant to the mandate of the Task Force, including activities in other regions. The assigned professional coordinator will report directly to the Chairman of the Task Force.

PROJECT TEAM I — Specific Projects, Programs, and Demonstrations

The Project Team on specific projects, programs, and demonstrations will identify and launch a number of specific projects and programs, such as those listed below. These will be carefully planned so that they can be both implemented and evaluated to determine their value to Region One and their likely value to the province as a whole. This will include a "Technology Innovation Centre" and a number of initiatives for improving the marketing and awareness of the new industries in Region One.

Membership in this Project Team will be drawn heavily from existing technology and knowledge-based industry within the region to ensure that the proposed projects, programs and demonstrations do meet real needs that have been identified by industry.

	Time Frame
Establishment of a "Technology Innovation Centre" and a liaison infrastructure that will support the needs of technology and knowledge-based industry in Region One, similar to OCRI in Ottawa:	Immediate
The production of a high-quality videotape of technology and knowledge-based companies within the region;	Near-term
The production of a high-quality directory of technology and knowledge-based companies within the region:	Near-term

The development of a communications program aimed at government (including individual caucus members and senior civil servants), the communities within the region and potential markets. The objective will be to develop an image of the region as a centre for technology and knowledge-based industries, and underline the benefits;	Near-term
Development of regional units of province-wide or federal organizations (e.g. the Science Council) to improve the access of Region One companies to their services;	Near-term
Development of follow-up marketing initiatives;	Longer-term
Establishment of one or more incubation centres;	Longer-term
A high-profile and high-quality attraction (c.f. the Royal B.C. Museum) which emphasizes the importance of the new technologies;	Longer-term
New financial programs which focus on the needs of technology and knowledge-based industries rather than the traditional manufacturing sector.	Longer-term

These projects, programs, and demonstrations will, wherever possible, make **use** of information and telecommunication technologies to help achieve their goals. These new technologies will be used **in concert with** the establishment of a local infrastructure within the Region.

By immediately initiating the proposed Technology Innovation Centre, the professional staff for this Centre will be able to play a support function for other projects.

PROJECT TEAM II — Critical Economic Indicators

In order to objectively determine whether the proposed initiatives are achieving any demonstrable effect, it is necessary to have an accurate and comprehensive overview of the activities within Region One, including employment and economic indicators. Several initiatives, such as the Discovery Foundation's province-wide database, the BIDC Directory, and the B.C. Business Network are already underway, but these are not yet in a form that can be accessed and manipulated into meaningful reports on the region.

The *Project Team on critical economic indicators* will draw its membership from the existing initiatives, including those with a province-wide mandate, in order to develop a database for Region One which could be a prototype for the whole province in terms of definition, maintenance, control, and access. It will include the development and maintenance of critical economic indicators within Region One and provide feedback to both the region and government on the effectiveness of the developmental strategies.

PROJECT TEAM III — Strategic Plan for Region One

In addition, an economic blueprint (a five year strategic plan) needs to be developed for Region One. This will address issues, such as those identified in the "1989 Technology Roundtable":

a) What makes a region technologically dynamic?

b) What needs to be done to improve the region's infrastructure for the development and diffusion of technology?

c) What are the roles and responsibilities for ensuring the accelerated development of technology-based industries within the region?

d) How can the role of science and technology be integrated into community and regional strategic plans?

e) What are the functions and form for a "Council" or "Standing Committee" for technology and knowledge-based industry within Region One"?

The *Project Team on the development of a strategic plan* will develop the direction that needs to be followed in Region One to achieve the goals of the Task Force. It will have both near-term and longer-term components. It will include a situation analysis of the communities within the region and analyze whether they possess the key elements that characterize technologically dynamic communities. It will also attempt to determine whether the "critical mass" or "growth pole" can be synthesized by *using modern telecommunication and information technologies to synergize the distributed resources already available in Region One.* It will also contain an analysis of the opportunities for the region, outline development strategies and tactics, and propose an implementation plan, including the creation of a Vancouver Island/Coast Council for Technology and Knowledge-Based Industries, similar to the Edmonton Council for Advanced Technology.

The Project Team will include representatives from those ministries and organizations that are already active in developing similar plans on a province-wide basis, but will also include representatives from the technology and knowledge-based industry within Region One.

PROJECT TEAM IV — Technology Transfer

The *Project Team on technology transfer* will focus on opportunities of transferring technologies from anywhere in the world to aid regional companies. This will include small businesses as well as the traditional resource-based companies within the region. This Project Team will identify strengths and possible collaborations with the universities, colleges, and other research centres within the region; will identify technology requirements within industry and small businesses; and will work closely with the Science Council of British Columbia to provide information to industry and small businesses in Region One which will facilitate technology transfer. By making better use of technology, it will be possible to enhance their productivity, increase their international competitiveness, and expand their market potential. It will also help to demystify the role of technology at the same time as increasing the contribution to economic development within Region One.

This Project Team will include senior representatives from existing resource-based industries within the region and from small businesses, perhaps through the local Chambers of Commerce.

PROPOSED PROCESS

At present, the Task Force is playing a leadership role, cooperating with other organizations within the region (e.g. VITRA and the Chamber of Commerce), and liaising with other province-wide initiatives (e.g. the Science Council's SPARK program). The creation of the Vancouver Island/Coast Council and the Technology Innovation Centre will replace the present Task Force and, at the same time, will begin a process of *moving support for these initiatives from government to industry*.

Once funding is available to permit staffing of the Technology Innovation Centre, this office will begin taking over the staff function of other specific projects. However, given the fact that there are at least 135 technology and knowledge-based companies in the region, then a major part of the initial activity will be liaising with existing companies and coordinating the communications and marketing initiatives. Additional funding will, therefore, be required for the creation of database and economic indicators, the development of a strategic plan and technology transfer within the region, and for liaising with province-wide initiatives. The creation of a Vancouver Island/Coast Council is likely to take somewhat longer to be established and will probably become an umbrella body. The Technical Innovation Centre may provide both the headquarters and the secretariat for the Council or it may evolve into a wholly industry-based activity. Until both the Vancouver Island/Coast Council and the Technical Innovation Centre are established, the Task Force will continue to require adequate funding to ensure that the momentum of the present implementation strategy is not lost.

The Vancouver Island/Coast Council will provide an active forum for networking ideas among all key sectors of the community. Members will include the Chambers of Commerce, the Vancouver Island Technology and Research Association, the university and colleges, government research laboratories (both federal and provincial), appropriate crown corporations, and appropriate federal and provincial ministries. The Council will meet regularly (similar to the Science Council of B.C.); will set up working groups, project teams, or sectoral committees as

appropriate; will evaluate the present base of technology and knowledge-based industries; will determine strengths and weaknesses (regional, scientific, and technological); and will develop strategies to diversify the technology and knowledge-based industries both technologically and geographically.

The Technology Innovation Centre will provide a service for new and established technology and knowledge-based companies within Region One; will act as a catalyst for industry cooperation/joint ventures; will liaise with potential new firms that are considering moving into the region; and will provide mechanisms for evaluating business plans and proposals for both government and industry, and business opportunities for investors, governments, and small businesses. The Centre will allow companies to readily find out:

- What is available from all levels of government;
- What industries or services in the region might be useful now or in the future;
- What market research options are available to determine whether or not the product or service will sell;
- What mechanisms are available to find out if someone else is doing the same thing elsewhere in Canada;
- What assistance is available to develop a sound business plan;
- What information is available to find sources of equity capital or other funding;
- What sources of assistance are available to market the product or service;
- Where to find qualified personnel; and
- What industry associations represent this type of enterprise.

With the right choice of staff, a two or three-person office could handle all of the inquiries from Region One. This could be done by **using modern**

telecommunications and information technology and functioning as an information broker and referral service.

The professionals running this office will, therefore, have to establish the means of being constantly up-to-date on changes in available services and maintaining contact with all of the relevant companies within Region One. They will have to have an excellent rapport with senior level staff in these companies and with public organizations, be able to quickly gain the confidence of the advanced technology companies, and be highly dedicated.

The office for the Centre must be in a high profile, very visible location — with easy access to the Conference Centre — but must be both functional and sensitive to the needs of small businesses. The Centre itself, together with exhibits in locations such as the Conference Centre, will be used to attract new firms to Region One and must be able to provide any prospective company with a great deal of **relevant** information to allow it to make an informed decision as to whether or not to locate in Region One.

AN ACTION PLAN FOR REGION ONE

It is clear that some decisive steps need to be taken to accelerate the development of technology and knowledge-based industries within the region. There are some immediate needs that have already been identified by industry and there are some longer-term initiatives which must also be undertaken at the same time, such as developing an economic blueprint for the region. It would be a mistake to regard these as "either/or" initiatives. On the contrary, those initiatives, which have been identified as immediate needs, should be implemented within a broader framework which determines how effective they are in promoting economic growth. Similarly, the economic blueprint needs to be developed on the basis of specific projects, programs, and demonstrations which are fed forward into the strategic plan. The immediate problem, therefore, is not what needs to be done, but how to most effectively accomplish it.

Based on the activities that have taken place over the past few months and discussions with many of the key players, the following action plan is recommended:

1. Since the Technology and Innovation Task Force is already in existence and has demonstrated its leadership in cooperating with other organizations (both within the region and province-wide), it should **continue to show leadership and maintain the present momentum**, until such time as it is replaced by a "Vancouver Island/Coast Council" or "Standing Committee."

2. In order to focus its activities, the Task Force should **establish a number of task-oriented Project Teams** or Working Groups to achieve some clearly defined deliverables. Four Project Teams are initially proposed:

   I Project Team on the implementation of specific projects, programs and demonstrations;
   II Project Team on the development of critical economic indicators;
   III Project Team on the development of a strategic plan for Region One
   IV Project Team on technology transfer.

   Other Project Teams can, of course, be established by the Task Force or the Council as the need arises.

3. Each of these Project Teams will require the commitment of volunteers from the Task Force, industry, government, and other initiatives, plus professional planning support resources. Until the end of the current fiscal year, $75,000 should provide adequate professional resources to Project Teams II, III, and IV. A contribution in kind from industry, through participation in the work of the Project teams, is expected to at least match the above amount.

   Funding for professional support should come initially from the Minister of State for Region One. Such funding could be catalytic in securing support from other ministries, perhaps on a joint venture basis, particularly once the Project Teams are established.

4. Project Team I requires funding **to hire a professional and an assistant for the Technology Innovations Centre**; to pay for office space, overhead, and travel; and to begin developing marketing information. With donated office space and volunteer time from industry, an estimated $50,000 will be required for salaries, $15,000 for travel and overhead, and $25,000 for marketing for the period September 1989 — March 1990. The expected contribution from industry (including volunteer time, office space, and effort involved in developing the marketing material) will be approximately $55,000.

5. By setting up and promoting the Technology Innovations Centre as an "incubation centre without walls", **it may be possible to closely coordinate this with the plans of the Discovery Foundation**. Once established, the Technology Innovations Centre should be able to secure additional funding both from other organizations, industry, and various ministries on a contract for services basis and become self-sustaining by the third year of operation.

6. The Science Council of British Columbia has indicated that it plans **to appoint a regional coordinator for Region One** as part of its SPARKS initiative. This is a function different from that envisaged to support the needs of technology and knowledge-based industry in Region One, but is clearly complementary. However, it could certainly provide the Chairman of the Task Force with some professional support. Depending on the amount of time required to liaise with the various SPARK Sectoral Committees, it may also be able to provide a coordinating role with some of the Project Teams, particularly those on Technology Transfer and Strategic Planning.

The above action plan will result in the following deliverables within the current fiscal year:

- A Technology Innovation Centre will be created which will support the needs of technology and knowledge-based industry within Region One and provide a liaison infrastructure. Such a centre could also serve as a

regional office for province-wide organizations such as the Science Council of B.C.

- A high-quality communications program will be initiated, designed to increase awareness, promote the region, and increase the market share of existing industries.

- A Vancouver Island/Coast Council for Technology and Knowledge-Based Industry will be established with membership from the local Chambers of Commerce, the Vancouver Island Technology and Research Association, the university and colleges, government research laboratories (both federal and provincial), appropriate crown corporations, and appropriate federal and provincial ministries.

- Critical economic indicators for knowledge-based industries and advanced technology within Region One will be developed, providing feedback to the Vancouver Island/Coast Council, government, and organizations like the Science Council of British Columbia and Discovery Foundation on the effectiveness of the developmental strategies.

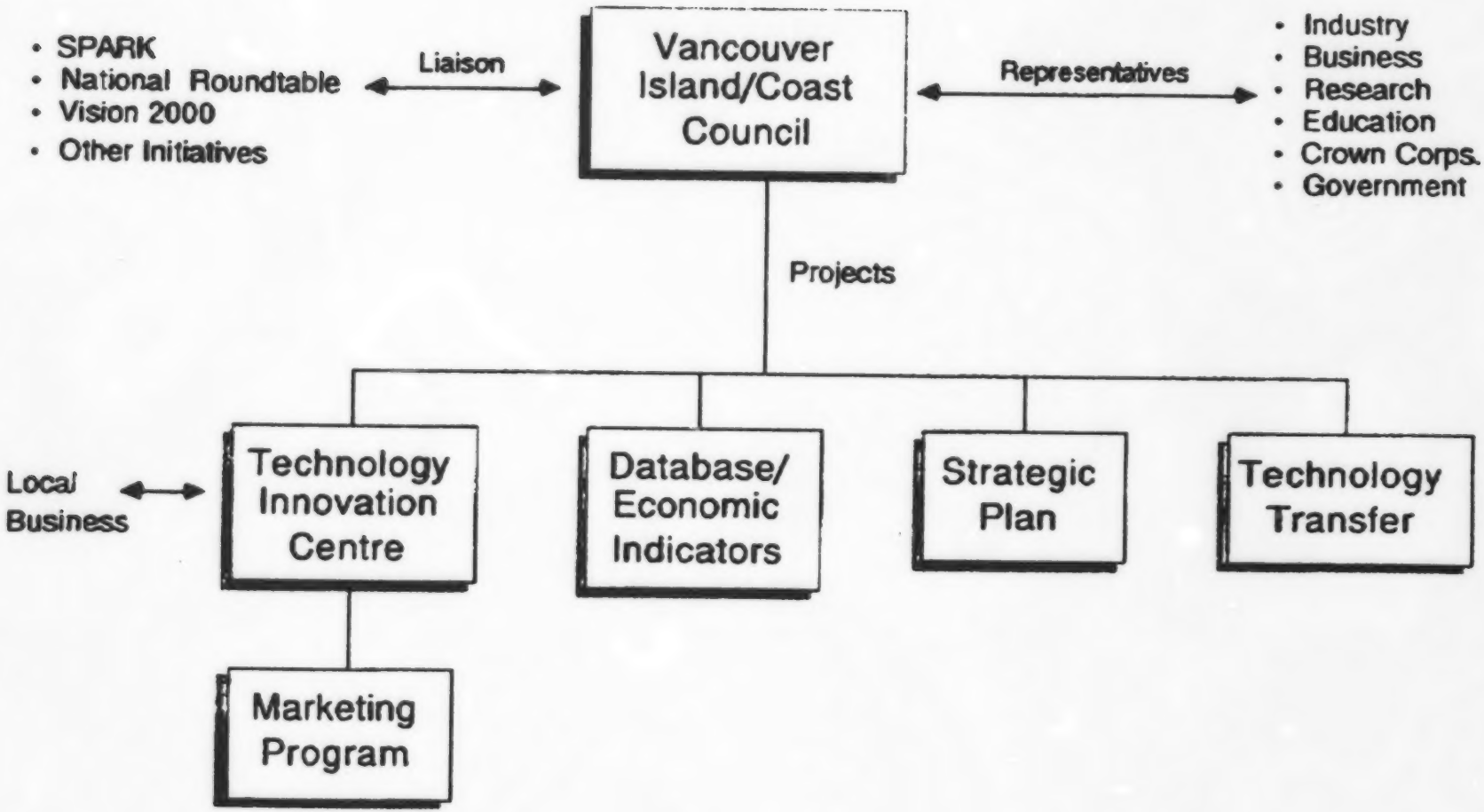
- An initial strategic plan for Region One will be developed based upon the growth of technology and knowledge-based industries and the transfer of new technologies to the existing industries within the region.

Other deliverables will be defined once the Technology Innovation Centre and the Vancouver Island/Coast Council have been established.

An Implementation Strategy:

The Report of the Technology and Innovation Task Force

APPENDIX


• SPARK
• National Roundtable
• Vision 2000
• Other Initiatives
Liaison
Vancouver Island/Coast Council
Representatives
• Industry
• Business
• Research
• Education
• Crown Corps.
• Government
Projects
Local Business
Technology Innovation Centre
Database/ Economic Indicators
Strategic Plan
Technology Transfer
Marketing Program